

HAIR NICOTINE CONCENTRATION IN NON-SMOKING WORKERS EXPOSED TO SECONDHAND TOBACCO SMOKE

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Background and Aim: Exposure to secondhand tobacco smoke (SHS) is a public health problem of high concern worldwide. Restaurants and nightclubs are the work environments with higher levels of exposure to SHS. Our aim was to assess personal exposure to SHS, measured by hair nicotine concentrations, and to identify its main determinants in non-smoking workers of bars and restaurants in Santiago, Chile.

Methods: A total of 79 non-smoking workers from 25 bars and restaurants were recruited in 2008 and completed a questionnaire, provided a hair sample to measure nicotine concentrations and used two passive personal samplers to measure airborne nicotine concentrations for 24 hours. One sampler was used during working hours and one sampler was used outside the workplace. Hair and passive sampler filters were analyzed at the Johns Hopkins Bloomberg School of Public Health. Multiple linear regression models were used to evaluate determinants related to hair nicotine concentrations.

Results: The median age was 30 years (interquartile range (IQR) 24-40). The proportion of men was 66%. The median number of days of work was 6 (IQR 5-6) and median number of hours worked per day was 9 (IQR 8-11). Comparing the hair nicotine concentrations by type of location, we found that workers in smoking venues had higher concentration (13.7 ± 5.5 ng/mg) than workers of non-smoking venue (3.5 ± 5.5 ng/mg) and mixed venue (3.7 ± 6.2 ng/mg). A change in $1 \mu\text{g}/\text{m}^3$ in air nicotine concentrations in the workplace was associated with 0.42 ng/mg higher hair nicotine concentrations (95% CI 0.19, 0.65; $R^2=0.13$). Women had 0.64 ng/mg lower hair nicotine concentrations compared to men (95%CI -0.92, -0.36; $R^2=0.20$).

Conclusions: Results show that workers of bars and restaurants are unprotected against SHS exposure. Due to health risks associated with SHS exposure, a comprehensive smoke-free legislation is urgently needed in Chile.